REPORT

OF THE

CHIEF INSPECTOR OF MINES AND EXPLOSIVES IN MYSORE

FOR THE YEAR 1935-36.

A—MINING AND PROSPECTING.

(1) CERTIFICATES OF APPROVAL.

Twenty-five Certificates of Approval were current during the year of which eight were newly issued and the rest renewed.

(2) LEASES AND LICENSES.

The following statements show the number of leases and licenses current during the year as compared with the previous year 1934-35 :—

(a) Mining Leases.

	Mineral	District	1934-35	1935-36
1.	Gold	Kolar	21	21
2.	Chromite	Mysore	2	2
	Do	Hassan	5	5
3.	Kaolin	Kolar	1	1
	Do	Kolar and Bangalore ...	1	1
4.	Magnesite and Chrome ...	Mysore	3	3
5.	Manganese	Chitaldrug	3	3
		Total ...	36	36

District Abstract

District.	*1934-35.*	*1935-36.*
Mysore	5	5
Kolar	22	22
Kolar and Bangalore	1	1
Hassan	5	5
Chitaldrug	3	3
Total ...	36	36

(b) Prospecting Licenses.

Mineral	District	1934-35	1935-36
Copper	Chitaldrug	...	1
	Total ...	...	1
Copper, Lead and Silver	Chitaldrug	...	2
	Total ...	...	2
Gold	All Districts	...	1
	Total ...	..	1
Green Quartzite	Kadur	2	1
	Total ...	2	1
Kaolin or China Clay	Bangalore	3	2
Do	Kolar	4	3
	Total ...	7	5
Kyanite	Hassan	3	1
	Total ...	3	1
Manganese	Tumkur	1	1
Do	Chitaldrug	1	2
	Total ...	2	3
Mica	Mysore	...	1
	Total ...	...	1
Ochres	Chitaldrug	...	1
	Total ...	...	1
Slatestone	Tumkur	1	4
	Total ...	1	4
	Grand Total ...	15	20

District Abstract.

District	*1934-35.*	*1935-36.*
Bangalore	3	2
Mysore	...	1
Kolar	4	3
Tumkur	2	5
Kadur	2	1
Hassan	3	1
Chitaldrug	1	6
All Districts	...	1
Total ...	15	20

(c) Collecting Licenses.

Mineral	*District*	*1934-35.*	*1935-36.*
Soapstone ...	Tumkur ...	3	3
	Total ...	3	3

(d) Exploring Licenses.

Mineral	*District*	*1934-35.*	*1935-36.*
Gold ...	... Shimoga ...	1	1
Gold ...	... Kadur ...	1	1
Kaolin ...	... Kolar ...	1	1
	Total ...	3	3

(e) Summary.

The numbers of leases, licenses and approval certificates current during the year under report as compared with the previous year are as hereunder:—

	1934–35	1935–36
1. Mining leases	36	36
2. Prospecting licenses	15	20
3. Collecting licenses	3	3
4 Exploring licenses	3	3
5. Certificates of approval	20	25
Total ...	77	87

Total area covered by Mining Leases and Prospecting Licenses:—

1934–35	*1935–36*
23,690 acres and 16 guntas ...	28,341 acres and 11 guntas

If the area of 29,217 square miles covered by the Special Prospecting License for gold and silver is also taken into account, the total area held under Mining Leases and Prospecting Licenses will be 29,261 square miles, 181 acres and 11 guntas.

Total amount of rent and cesses collected in respect of the above:—

1934–35	*1935–36*
Rs. 14,401-3-3	Rs. 45,564-15-3

The figure for the current year includes the sum of Rs. 29,217 collected as rent in respect of the Special Prospecting License for gold and silver issued to the Indian Mines Development Syndicate, Limited.

B—GOLD MINING.

I. Gold Production, Dividends and Royalty for the Calendar Year 1935.

The nominal capital of all companies carrying on operations in Mysore was—

	£	*s.*	*d.*
In December 1935	1,563,000	0	0
and in December 1934	1,563,000	0	0
or the same for both years			

The amount of the above capital called and paid-up was—

	£	*s.*	*d.*
In December 1935	1,513,772	0	0
and in December 1934	1,513,772	0	0
or the same for both years			

The number of companies which carried on operations during the year was four as against the same number in the previous year, all of which produced gold and paid dividends.

The quantity of fine gold produced—

	Ozs.
During 1935 amounted to	326,124·539
and during 1934 to	321,133·184
being an increase of	4,991·355

The quantity of fine silver produced—

	Ozs.
During 1935 amounted to	24,477·38
and during 1934 to	25,491·22
being a decrease of	1,013·84

The total value of fine gold and silver produced—

	£	s.	d.
During 1935 amounted to	2,296,472	14	6
and during 1934 to (revised)	2,212,708	1	9
being an increase of	83,764	12	9

or, an increase of 3·79 per cent as against an increase of 6·00 per cent (revised) in the previous year, the increase in value being due to increased production.

The total amount paid in dividends—

	£	s.	d.
During 1935 was	517,352	4	0
and in 1934	504,621	10	0
being an increase of	12,730	14	0

The total dividends paid during the year by all the companies amounted to 34·18 per cent of the paid-up capital, the corresponding figure for 1934 being 33·34 per cent.

The royalty payable to Government on the gold and silver won and on dividends paid or "adjusted profits" amounted to—

	£	s.	d.
During the year 1935	195,467	18	6
and in 1934 (revised)	188,450	8	2
being an increase of	7,017	10	4

the increase being 3·72 per cent as against an increase of 62·31 per cent in 1934 (revised), which in itself was due to the revised lease terms that came into force from 1st January 1934.

II. Total Gold Production, Dividends and Royalty from 1882 to the end of 1935.

The total quantity of fine gold produced from the commencement of mining operations is—

	Ozs.
Up to the end of 1934	17,909,069·895
and for 1935	326,124·539
Grand Total ...	18,235,194·434

The total value of gold bullion produced—

	£	s.	d.
Up to the end of 1934 (revised)	79,514,233	14	4
and for 1935	2,296,472	14	6
Grand Total ...	81,810,706	8	10

Total dividends paid—

	£	s.	d
Up to the end of 1934	23,930,100	1	2
and for 1935	517,352	4	0
Grand Total ...	24,447,452	5	2

The amount of royalty which has been paid to Government is—

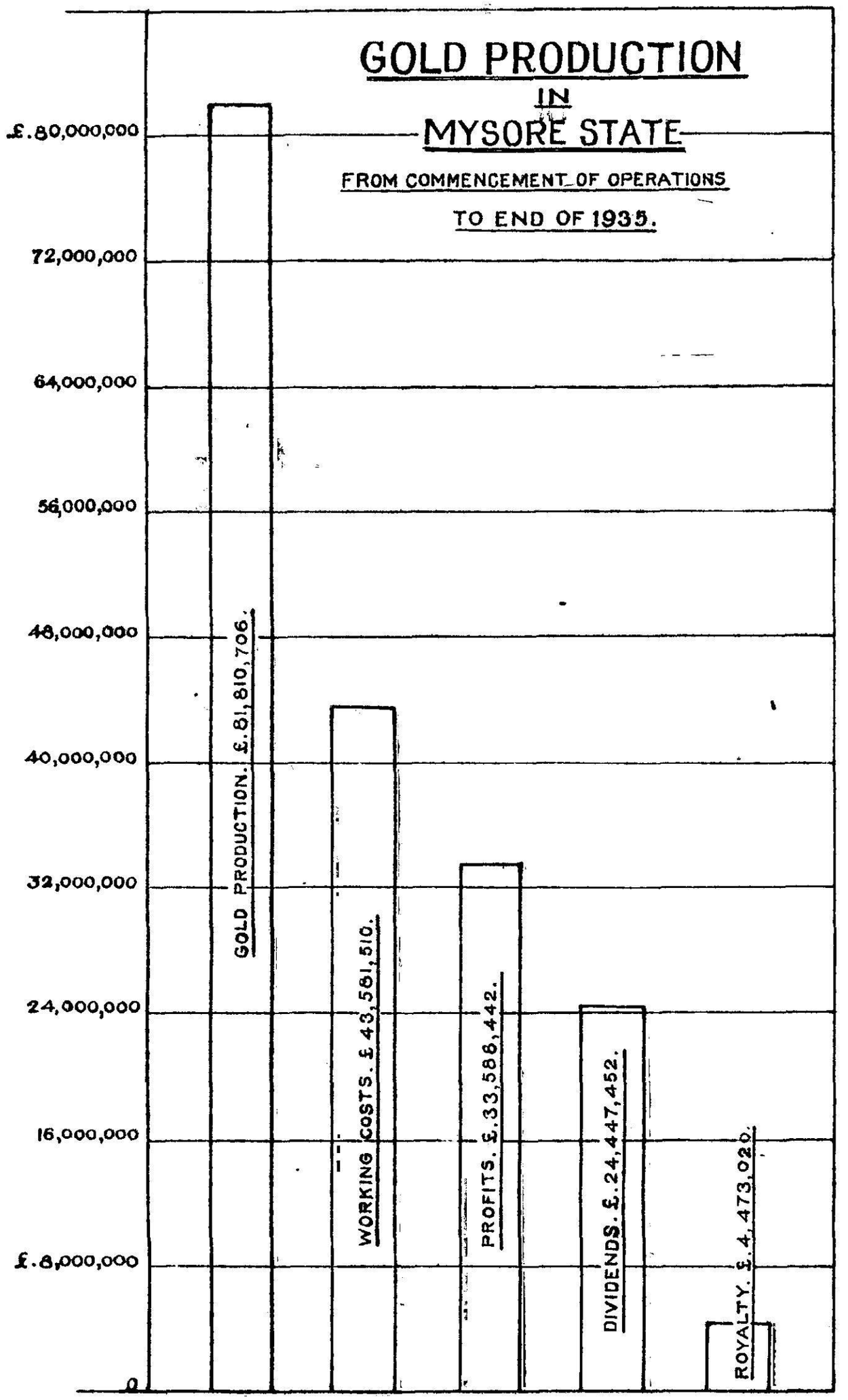
	£	s.	d.
Up to the end of 1934 (revised)	4,277,552	3	3
and for 1935	195,467	18	6
Grand Total ...	4,473,020	1	9

The total value of gold produced, working costs, profits earned, dividends declared and royalty paid from the commencement of operations to the end of the year 1935 are graphically represented in the following Chart I. The ratio of

Chart. I

GOLD PRODUCTION IN MYSORE STATE

FROM COMMENCEMENT OF OPERATIONS TO END OF 1935.



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LITHO GOVT. PRESS BANGALORE

total dividends and royalty paid to the nominal capital of the present working companies on the Kolar Gold Field works out at 15·46 and 2·87, respectively.

III. Statement showing the Amount of Royalty Payable to Government, the Amount Paid and the Balance still Due for the Year 1935.

(As furnished by the Comptroller).

GOLD (A).

No.	Name of Mine	Balance due on account of the previous year	Amount due for the current year	Total demand	Collection	Balance due (1st January 1936)
		Rs. a. p.	(a) Rs. a. p.	(a) Rs. a. p.	Rs. a. p.	Rs. a. p.
1	Mysore	1,07,928 4 0	5,99,250 9 0	7,07,178 13 0	5,95,977 13 0	1,11,201 0 0
2	Champion Reef ...	79,424 5 0	4,70,949 12 0	5,50,374 1 0	4,71,656 12 0	78,717 5 0
3	Ooregum ...	59,327 6 0	2,84,546 9 0	3,43,873 15 0	2,81,588 13 0	62,285 2 0
4	Nundydroog ...	1,31,734 11 0	12,77,189 15 0	14,08,924 10 0	12,81,681 8 0	1,27,243 2 0
	Total ...	3,78,414 10 0	26,31,936 13 0	30,10,351 7 0	26,30,904 14 0(b)	3,79,446 9 0
	Total for 1934 ...	3,46,206 14 0	16,15,006 13 0	19,61,213 11 0	15,82,799 1 0	3,78,414 10 0

(a) These figures include the amounts paid during the year 1935 on account of royalty on dividends or "adjusted profits" and not the amounts actually due for the year 1935.

(b) In addition, a sum of Rs. 110-3-0 was recovered from the Secretary, Kolar Gold Field Mining Board, on account of royalty on confiscated gold.

SILVER (B).

No.	Name of Mine	Balance due on account of the previous year	Amount due for the current year	Total demand	Collection	Balance due (1st January 1936)
		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1	Mysore	213 1 0	400 1 0	613 2 0	449 15 0	163 3 0
2	Champion Reef ...	224 5 0	398 6 0	622 11 0	470 14 0	151 13 0
3	Ooregum	208 4 0	410 7 0	618 11 0	446 0 0	172 11 0
4	Nundydroog	388 8 0	703 3 0	1,091 15 0	817 15 0	273 12 0
	Total ...	1,034 2 0	1,912 1 0	2,946 8 0	2,184 12 0	761 7 0
	Total for 1934 ...	977 8 0	2,010 5 0	2,987 13 0	1,953 11 0	1,034 2 0

IV. Gold Production for the Six Months ending 30th June 1936.

Name of Mine		Fine Ozs.	Fine Ozs.	Value £ Sterling (estimated)
Mysore ...	Current Ore ...	47,939·65		
	Re-treatment of tailings-dumps	...		
	Other sources ...	...		
	Total ...	...	47,939·65	332,936
Champion Reef ...	Current Ore	34,540·79		
	Re-treatment of tailings-dumps ...	...		
	Other sources ...	..		
	Total ...	...	34,540·79	239,883
Ooregum	Current Ore ...	18,805·78		
	Re-treatment of tailings-dumps	6,270·60		
	Other sources ...	...		
	Total ...	...	25,076·38	174,153
Nundydroog	Current Ore ...	55,365·83		
	Re-treatment of tailings-dumps ...	1,056·31		
	Other sources ...	...		
	Total ...	...	56,422·14	391,847
	Grand Total	...	163,978·96	1,138,819

NOTE.—The figures in this statement are subject to revision.

Price of Gold.—All the gold produced during the year was sold in India in the Bombay market and the monthly average prices varied from 137·03 *Sh.* per oz. to 140·03 *Sh.* per oz. The average price for the year was 139·02 *Sh.* per oz. against 140·04 *Sh.* in the year 1935-36, a decrease of 1·02 *Sh.*

The accompanying Chart II shows the monthly rate of production and the average price of gold during the years 1931 to 1935 and the first half of 1936.

KOLAR GOLD FIELD.

MONTHLY GOLD PRODUCTION AND PRICE CURVES FROM 1931 TO 1935 & FIRST HALF OF 1936

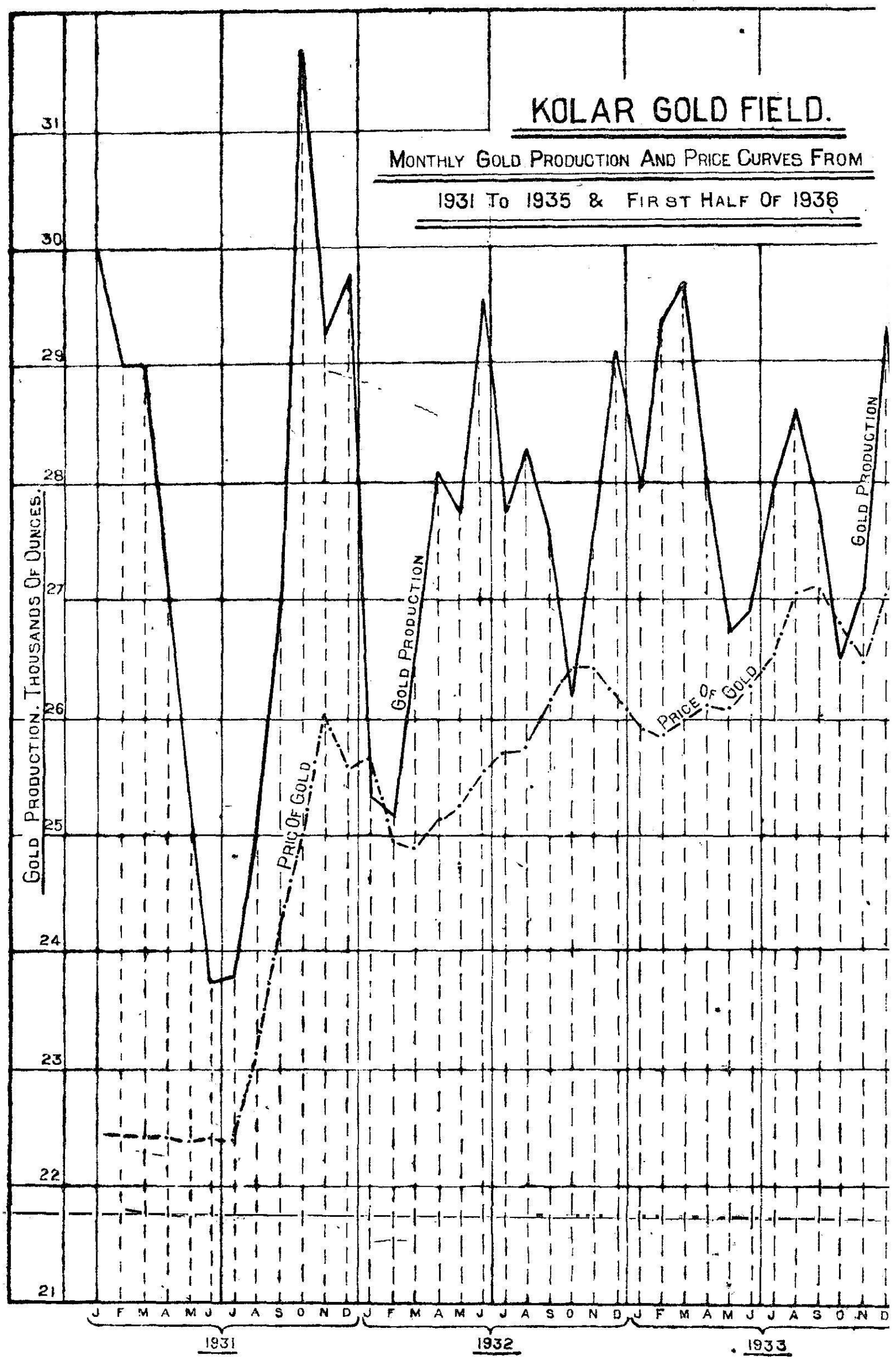

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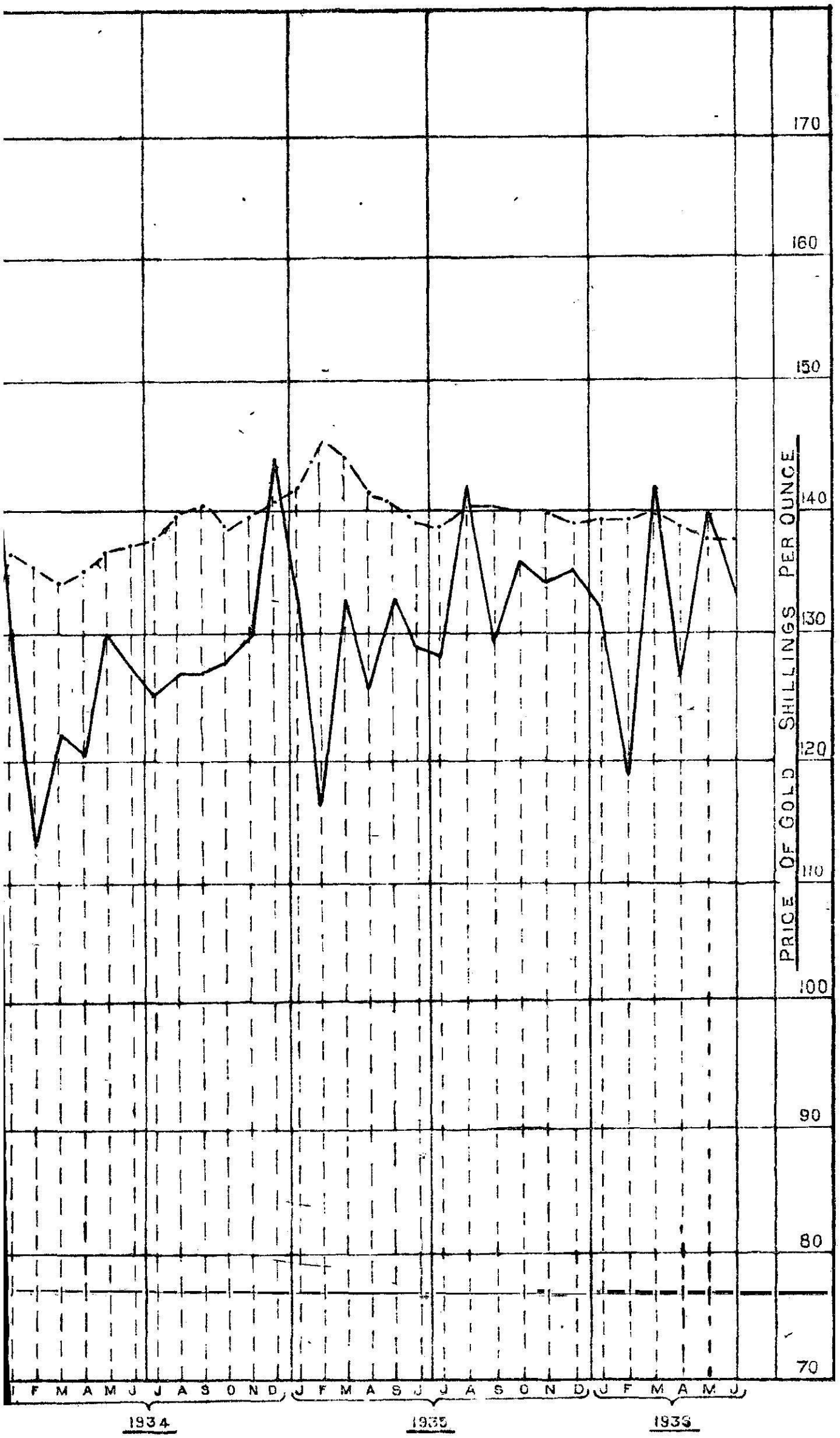
Chart II


170
160
150
140
130
120
110
100
90
80
70
SHILLINGS PER OUNCE
PRICE OF GOLD
I F M A M J J A S O N D
J F M A S J J A S O N D
J F M A M J
1934
1935
1936

V. Number of Mines.

GOLD.

Active or Producing.

Mining operations were in progress on the following blocks on the Kolar Gold Field as in the previous year:—

1. Mysore Block, comprising Mining Leases Nos. 127, 128 129, 130, 134, 144, 151 and 152 worked by the Mysore Gold Mining Company, Limited.
2. Champion Reef Block, comprising Mining Leases Nos. 121 and 136 worked by the Champion Reef Gold Mines of India, Limited.
3. Ooregum Block, comprising Mining Leases Nos. 132 and 137 worked by the Ooregum Gold Mining Company of India, Limited.
4. Nundydroog Block, comprising Mining Leases Nos. 120, 123, 139, 145, 146, 162 and 163 worked by the Nundydroog Mines, Limited.

All the mines paid dividends for the year under report; the total amount distributed was £517,352-4-0 or 34·18 per cent of the paid up capital of all the Companies against £504,621-10-0 or 33·34 per cent in the previous year resulting in an increase of £12,730-14-0 or 0·84 per cent. The Nundydroog Mines, Limited, paid dividend at the same rate as last year *viz.*, 67½ per cent, and the Mysore and Champion Reef Companies at the rates of 27½ and 42½ per cent, respectively, an increase of 2½ per cent over last year. The Ooregum Company distributed dividends at 10 and 20 per cent on ordinary and preference shares, respectively, a decrease of 2½ per cent on both kinds of shares as compared with last year.

This year's mining operations resulted in an output of 326,124·539 ozs. of fine gold and 24,477·38 ozs. of silver, an increase of 4,991·355 ozs. of gold and a decrease of 1,013·84 ozs. of silver. The total value realised £2,296,472-14-6 was £83,764-12-9 more than that of the previous year which was due to the increased production. Details of gold production, value, royalty, etc., are available in Table I appended to this report.

The total quantity of current ore crushed by the four Mines and re-treatment of old tailings by the Champion Reef, Ooregum and Nundydroog Companies amounted to 709,211 tons and 393,833 tons as compared with 678,876 tons and 437,613 tons, respectively, in the previous year. The re-treatment of old tailings of the Champion Reef Mine was completed at the end of August 1935.

Ore Reserves.—The Champion Reef, Ooregum and Nundydroog Mines made additions to their ore reserves while the Mysore Mine showed a decrease of 9,000 tons. On the whole, there was an increase of 128,181 tons for the Field as compared with the reserves at the end of 1934.

The following statement gives the estimated reserves of ore at the end of 1935 compared with 1934:—

Name of Mine	1934	1935	Difference
	Tons	Tons	Tons
Mysore	431,000	422,000	—9,000
Champion Reef	405,489	448,241	+42,752
Ooregum	139,400	176,372	+36,972
Nundydroog	435,207	492,664	+57,457
Total ...	1,411,096	1,539,277	+128,181

In addition to the above, there is a further reserve of low grade ore payable at the present price of gold, details of which are given in the following statement :—

Name of Mine	1934	1935	Difference
	Tons	Tons	Tons
Mysore	242,000	283,000	+41,000
Champion Reef	78,033	107,619	+29,586
Ooregum	163,577	94,000	—9,577
Nundydroog	212,416	217,916	+5,500
Total ...	636,026	702,535	+66,509

The following statement gives the total tonnage of ore reserves including low grade ore (1935) and the average quantity crushed by each mine during the past five years :—

Name of Mine	Total reserves	Average tonnage crushed during the past 5 years
	Tons	Tons
Mysore	705,000	181,484
Champion Reef	555,860	118,676
Ooregum	270,372	143,538
Nundydroog	710,580	195,258
Total ...	2,241,812	638,956

Inactive or Non-Producing.

1. Krishnarajapur Block, Mining Lease No. 119.

2. East Betrayaswami Block, Mining Lease No. 118; option held by the Mysore Gold Mining Company, Ltd.

A prospecting license for gold and silver has been granted to the Indian Mines Development Syndicate, Ltd., over the whole State excepting Kolar Gold Field area and the Krishnarajapur Block for a period of 3 years. The results of prospecting are being watched with interest.

Ventilation.

The system of ventilation remained the same as last year. With the extension of the mines in depth, the demand for increased ventilation was met by the installation of larger fans and also by the provision of numerous auxiliary fans or boosters to supply adequate air to the development points not served by the main currents.

Two of the mines on this Field have reached vertical depths of over 7,800 ft. below field datum and the air temperatures at the bottom levels ranged between 104°F to 116°F dry bulb and 87°F to 95°F wet bulb, the difference between the two ranging from 14°F to 25°F, the rock temperature at this depth being 131·2°F. Although the problem of high temperatures underground is not very urgent at the present time, the mines are fast reaching a stage when the provision of an air cooling plant either on surface or underground, may have to be considered in the near future to further improve the present system of ventilation.

The following statement shows the number and particulars of fans installed in the mines working on the Kolar Gold Field :—

Statement showing the ventilation fans installed in the Mines working on the Kolar Gold Field.

Field Datum is 2,967·21 feet above sea level (Madras).

Number Installed	Number In use	Situation and depth below surface	Vertical depth below Field Datum	Type of Fan	Size, diameter of runner and width of casing in inches	Speed R. P. M.	Rated E. H. P. at surface	Volume of air in cubic feet per minute	Water gauge in inches	Size of Fan outlet
		MYSORE GOLD MINING COMPANY, LIMITED.								
1	1	Ribblesdale's 51st level ...	3,711	Sirocco	50"×36"	375	36	40,000	3·0	40"×40"
1	1	Do 57th do ...	4,302	do	50"×36"	375	19	28,000	2·75	40"×40"
1	1	Air Shaft 50th level ...	3,582	do	40"×18"	480	7	9,000	1·0	24"×24"
1	1	Rowse's, No. 2, 73rd level ...	5,891	do	40"×18"	480	36	23,000	2·5	24"×24"
1	1	North of Air Shaft 59th level ...	4,502	do	25"×15"	750	19	18,000	2·0	20"×20"
1	1	Edgar's Auxiliary 50th level ...	3,580	do	56"×64"	440	147	85,000	5·5	64"×86"
1	1	South Auxiliary 80th level ...	6,580	do	20"×7½"	1,430	14	5,000	2·5	11"×11"
1	1	North Auxiliary 80th level ...	6,580	do	20"×7½"	1,430	23	5,000	2·5	11"×11"
		CHAMPION REEF GOLD MINES OF INDIA, LIMITED.								
1	1	40th level, Heathcote's Converter Chamber.	3,633	Sirocco	30"×24"	715	15	22,000	2·0	30"
1	1	41st Rowe's ...	3,637	do	55"×46"	385	67	54,852	3·3	48"×64"
1	1	59th level S. of Heathcote Shaft ...	5,425	do	55"×46"	380	36	40,386	2·0	48"×64"
1	1	59th N. of Carmichael's Shaft ...	5,425	Aeroto	50"dia.	1,475	83	70,224	5·0	65"
		OOREGUM GOLD MINING COMPANY OF INDIA, LIMITED.								
1	1	Bullen's 66th level ...	6,076	Sirocco	56"×53"	380	93	90,000	4·0	66"×53"
1	...	Bullen's 66th level ...	6,076	do	50"×40"	360	36	41,000	3·0	40"×40"
1	1	Circular Shaft Fan at surface ...	100	do	77"×88"	362	252	225.000	4·1	88"×88"
1	...	Oakley's Shaft Fan at surface ...	133	do	84"×96"	296	204	208,000	4·0	96"×96"
1	1	Bullen's Induced Draught Fan ...	100	do	50"×40"	360	16	...	...	40"×40"
1	1	Auxiliary Shaft 73rd level ...	6,728	do	50"×40"	360	48	41,000	3·0	40"×40"
1	1	Auxiliary Shaft 80th Blower ...	7,428	Blower	14"dia	variable	..	75	...	14"dia.
2	2	Auxiliary Shaft 81st Blower ...	7,528	do	14"dia	do	...	75	...	14" ,,
1	1	Auxiliary Shaft 82nd level Blower ...	7,628	Sirocco	25"×20"	do	...	150	...	25"×25"
2	2	Auxiliary Shaft 82nd level ...	7,628	Hele-Shaw	15"×11"	do	...	130	...	15"dia.
1	1	Auxiliary Shaft 82nd level Blower ...	7,628	Blower	14"dia	do	...	75	...	14"dia.
1	1	Bullen's 79th level plat ...	7,328	Sirocco	25"×20"	do	...	150	...	25"×25"
1	1	Bullen's 80th level ...	7,428	Hele-Shaw	15"×11"	do	...	130	...	15" dia,
1	1	Bullen's 80th level Blower ...	7,428	Blower	14"dia	do	..	75	...	14" ,,
1	1	Bullen's 81st level Blower ...	7,528	do	14"dia	do	...	75	...	14" ,,
1	1	Bullen's 82nd level ...	7,628	Sirocco	25"×25"	do	...	150	...	25"×25"
		NUNDYDROOG MINES, LIMITED.								
1	1	48th Taylor's ...	4,186	Sirocco	56"×64"	416		85,000	5·10	48 sq. ft.
1	1	48th Balaghat ...	4,184	do	55"×40"	430		86,000	4·15	38·6" ,,
1	1	60th No. 4 Auxiliary ...	5,473	do	20"×11"	1,450		4,000	...	18" dia.
1	1	60th No. 4 Auxiliary sink ...	5,473	do	35"×30"	640		14,000	3·20	28" ,,
1	1	60th No. 1 do ...	5,473	do	35"×30"	550	370	11,000	2·00	28" ,,
1	1	60th No. 2 Auxiliary Drive ...	5,473	do	20"×11"	1,450		4,000	...	18" ,,
1	1	59th No. 2 do ...	5,325	do	35"×30"	550		13,000	3·25	28" ,,
1	1	58th No. 3 do ...	5,185	do	20"×11"	1,450		11,000	1·50	18" ,,
1	1	58th No. 3 do Sink ...	5,185	do	35"×30"	550		12,000	2·00	28" ,,
1	...	Taylor's Shaft, Nundydroog ...	Surface	do	55"×30"	360	...	42,000	2·50	30·0sq.ft.
1	...	Taylor's Shaft, Balaghat ...	do	do	55"×40"	395	...	30,000	2·00	38·6

Rescue Station.

The following notes kindly furnished by Messrs. John Taylor & Sons' Committee on the organisation and working of the Rescue Station on the Kolar Gold Field will be of interest:—

A Central Mine Rescue Station has been established on the Kolar Gold Field, since the year 1923, for the purpose of training selected employees of all classes in the use of oxygen breathing apparatus and gas masks. The services of the Rescue Station are available for employment in a fire emergency for the rescue of gassed or trapped men and for fire-fighting and recovery work.

The Station is centrally situated near the Ooregum Railway Station and is equipped with 58 sets of Proto Oxygen breathing apparatus and a number of Burrell and Puretha gas masks. A specially equipped motor lorry is housed in the Station and is always loaded with 18 fully charged Proto sets and six Burrell or Puretha masks together with refilling materials and necessary gear. This lorry can deliver rescue apparatus to the most distant shaft in 15 minutes at most. The lorry also carries 1,000 feet of hose pipe in lengths of 50 feet.

Two Eve-Riley rocking stretchers are kept at the Rescue Station for the resuscitation of men affected by gas poisoning. Two sets of Novita reviving apparatus and one "Sparklet" CO^2 Resuscitator are carried on the lorry.

The organization is controlled by Messrs. John Taylor & Sons' Committee and is under the direction of an officer-in-charge. An European Chargeman and his staff of three Indians reside at the station and are always on duty in case of emergency. The non-resident trained Rescue men number 145 and are drawn from the European, Anglo-Indian and Indian members of the underground staff of the four mines on the Field. Every man is practised monthly at the Station and quarterly underground. A history card is maintained for each trained man giving particulars of his service, attainments and the number of practices performed annually. Deputy Officers drawn from the senior European trained men are appointed on each mine to regulate the training under the officer-in-charge, and assume control of a fire emergency until the arrival of the officer-in-charge who is primarily responsible for the conduct of fire-fighting operations.

The Proto oxygen breathing apparatus with which the station is equipped is entirely self-contained and enables the wearer to work in a lethal atmosphere for periods up to two hours without recharging. The Burrell or Puretha mask is an apparatus used in early reconnaissance and affords protection against carbon monoxide, but cannot be used in an atmosphere deficient in oxygen. Masks are installed at all underground hoist chambers and winches for the protection of drivers who can thereby continue to work essential hoists during an emergency. These masks are the property of the mine concerned.

An aviary is maintained and stocked with small local birds. These birds are intended for use as gas detectors, but it has been found that with the great depth and high temperature obtaining in the mines on the Kolar Gold Field they are unsuitable in the majority of cases and reliance cannot generally be placed on their behaviour.

Ventilation sections of the mines are posted at the Rescue Station and the trained rescue men are instructed in the system in force at their mines and the measures to be adopted in a fire emergency.

A fire engine mounted on wheels and capable of being towed behind the rescue lorry is housed at the station and is available for combating surface fires.

"Safety-First" Campaign.

Lectures and talks are given to workmen every day at roll-call explaining the safety-first principles and the right and wrong method of doing work. Particular attention is drawn to avoidable accidents arising out of carelessness and negligence such as deepening sockets, drilling into misfires, working under unsupported or dangerous ground, hasty work, etc., and the evils arising therefrom are vividly brought home to the workmen with reference to accidents that may have occurred in the mine.

Pamphlets containing instructions to underground workers based on the mining rules printed in English, Tamil, Telugu and Malayalam are freely distributed amongst literate workmen with instructions to educate others that come under their influence.

A large number of workmen have been trained in "First-Aid" and regular classes are held to train recruits from time to time. Examinations are held every year and all the successful candidates are given money rewards to induce others to qualify themselves similarly. Fully equipped "First-Aid" stations have been opened at all important places underground and the stocks of first-aid materials there are replenished as and when required. The total number of workmen qualified to render first-aid during the past 10 years is about 1,500 and on an average 150 persons pass in the First-Aid examinations every year.

Base Minerals.

Chrome mining, one of the important base mineral concerns of the State, showed a decided improvement during the year due to favourable foreign market conditions. The market for manganese, another important mineral, continued to be dull during the year. Some mining was carried out at Hulikatte, Honnebagi

and Keshapur Mines for experimental purposes. At the latter mine, a concentrating plant has been installed by Mr. H. D. Coggan, the lessee, for improving the grade of low grade pyrolusite. The results are being watched with great interest. The Mysore Iron Works mined as usual large quantities of iron ore and limestone for their own use.

The following table shows the production in short tons of the important base minerals during the years 1934 and 1935:—

		1934	1935	
		Tons	Tons	
Manganese	...	478·92	975·58	(497·28 tons were collected by the Mysore Iron Works for their own use).
Chromite	...	15,266·93	22,522·84	
Magnesite	...	3,490·48	4,641·84	
Kaolin	...	4,239·80	3,269·40	
Soapstone	...	118·72	117·60	
Iron Ore	...	43,650·88	26,901·28	For use at the Mysore Iron Works.
Limestone	...	3,831·52	6,608·00	
Graphite	...	266·95	167·60	

Further details regarding base minerals are found in Table 4 appended to this report.

VI. Notes on Mines.

Mysore Mine.

Compared with the year 1934 there was a larger output, the quantity of ore milled—189,004 tons—being about 12,000 tons more, while the production of gold was increased by 2,205 ozs. to a total of 94,711 ozs. The average price realised for the gold was £7-0-4½ per oz., or 2 *s.* 11½ *d.* more than in 1934, and the total revenue was increased by £27,775 to £638,313. The dividends distributed amounted to 2*s.* 9*d.* per share or 27½ per cent against 25 per cent in the preceding year, absorbing a sum of £167,750—the largest distribution for any year since 1917.

Development.—Reclamation and development work in the upper levels of the mine to get at the ore reserves rendered inaccessible by a series of rockbursts some years ago are being carried on vigorously through footwall drives and along the old reef drives. The north and south reclamation winzes have been connected up at the 39th level—footwall drive—and a footwall winze has been started below this horizon to serve as an alternative travelling way to exposed blocks of ground between the 39th and 45th levels. The opening up of this part of the mine with footwall drives has considerably improved the ventilation.

Plats have been cut at the 84th level in South Auxiliary Vertical, Edgar's Sub-Vertical and North Auxiliary Vertical Shafts which have been sunk below the 84th level 96, 118 and 133 feet, respectively. The deepest point in the mine is the sink of North Auxiliary Vertical Shaft, 7,113 feet below field datum.

The lode is now being explored at the 80th level and from the 76th level downwards the lode channel has been improving.

North Auxiliary Vertical Shaft has been equipped to the 84th level and development work is proceeding from the 82nd and 84th levels. South Auxiliary Vertical Shaft is being equipped to the 84th level in preparation for development from the 82nd and 84th levels.

The total amount of development work carried out during the year measured 18,011½ feet, an increase of 1,359½ feet over that of 1934.

An air-operated single drum winder has been installed at Gilbert's Shaft (surface) to release the 340 H. P. double drum electric winder for service at the 51st level, Edgar's Sub-Vertical Shaft. The Chamber for this engine at the 51st level has been completed, and the rope rise and other work essential for the installation is in hand. This winder will be used for equipping the Sub-Vertical Shaft.

The enlargement of the engine chambers at the 76th level, N. and S. Auxiliary Vertical Shafts, is under way with a view to electrifying both these winders.

In Pilot Shaft, a rise has been put up to surface from the 284 ft. level as an alternative travelling way to the workings.

The mine ventilation ways have been maintained and extended in depth as development proceeded.

Granite masonry supports in stopes and steel setting of levels has been continued throughout the year with satisfactory results.

The reserves of ore at 31st December 1935 were computed at 422,000 tons of an average grade of 13·1 dwt. This shows decreases during the year of 9,000 tons and 0·5 dwt., respectively. There is, in addition, a tonnage of probable ore of low grade estimated at 283,000 or 41,000 tons more than at the end of 1934.

Champion Reef Mine.

During the year 66,385 ozs. of fine gold were produced from 136,100 tons of ore, and 1,682 ozs. were recovered from 81,583 tons of tailings re-treated, making a total return of 66,067 ozs. of fine gold.

The average assay value of the ore milled was 9·96 dwt. of gold per ton and the extraction represented 97·94 per cent of the gold content.

Sales of bullion realised an average price of £7-0-6¾ per oz. as against £6-17-7½ in 1934 and amounted in all to £479,117-0-10; a dividend of 4*s.* 3*d.* per share or 42½ per cent was paid, an increase of 2½ per cent over last year.

Development operations underground in sinking, driving, cross-cutting and rising measured a total of 9,496 feet, or 2,506 feet less than in the previous year, the decrease being due principally to a reduction of work on Mundy's Lode, and also a lesser footage of sinking in North Main Winze.

Heathcote Shaft has been sunk 203 feet and lined in concrete, the bottom of the shaft being 214 feet below the 80th level or a vertical depth of 7,814 feet below surface, the deepest point in the mine. It has been equipped from the 78th to the 80th level and the cages are hoisting from this level. At the 80th level, footwall drives north and south are being put out, the south drive to the site of the new South Main Winze and the north drive to prove the lode north of Mysore north fault.

No mine on the Field made so splendid a response to development last year as Champion Reef. Glen Ore Shoot has been opened up to the horizon of the 80th level. The 79th and 80th levels have been driven on the ore shoot and are still in values. At the end of last year, the values at the 79th level, for 960 feet, averaged 28 dwt. per ton over a width of 40" while practically the same widths and values were disclosed at the 80th level. In addition, a substantial tonnage of low grade ore continues to be developed.

Support of Mine Workings.—Glen Ore Shoot represents an area of 25 acres to be supported and due to the enormous pressures at this depth it was considered advisable to have a more rigid support than waste-rock filling as hitherto. Flat back-stoping and supporting with granite packwalls has been introduced. This is proving a much better support; the packwalls are 20' long with 4' spaces in between which are used for ore passes but, when stoping is finished, they will serve as upcast air-ways which are necessary to promote better ventilation.

North Main Winze has been sunk 430 feet below the 76th level lined in concrete and fully equipped to the 80th level. The cages are hoisting from this level.

Gifford Shaft is being sunk from the 42nd level to the 70th level.

The reserves of ore at the 31st December 1935 were computed at 448,241 tons of an average grade of 11·86 dwt. of gold per ton, being an increase of 42,752 tons and 0·09 dwt. higher in grade compared with the estimate at the end of 1934. In addition, there is probable ore of low grade amounting to 107,619 tons as against 78,033 tons at the end of 1934.

Ventilation.—In addition to the existing fans a new Aeroto-type fan, capable of dealing with 60,000 c.ft. of air against 5½ inch water gauge was installed on the up-cast side at the 59th level, north drive. It has greatly improved the ventilation of the deep levels in this section. Dalyell's Shaft at the south end of the mine has been cleared from surface to the 5th level and Glen's Primary Shaft is also being cleared from surface to the 1,300 ft. level to ease the restriction in the upcast air-ways of the mine. The average volume of downcast air during the year was

114,000 c.ft. per minute as against 101,847 during the previous year, the average temperatures being 70·99°F dry and 66·17°F wet.

General.—The development results and the outlook for the future of this mine continue to be highly satisfactory. To enable the mine to be carried down to a vertical depth of at least 10,000 feet, steps are being taken to amplify the ventilating system and to make certain alterations to the shafts and winding arrangements.

The scheme includes the deepening of Gifford Shaft—the main artery of the Mine—to the 70th level, which is 6,550 feet vertically below surface, and the provision of a new electric winding engine to hoist from this depth. Sinking was resumed in March of this year; by cross-cutting to the position of the shaft it will be sunk simultaneously from different horizons to expedite its completion. This will be the deepest single stage winding shaft in this Field. Second stage winding will commence from the 70th level, where Heathcote Shaft will be connected to Gifford Shaft. The deepening of Gifford Shaft will also give downcast ventilation air an uninterrupted path to the 70th level, from where it will pass to the bottom of the mine down Heathcote Shaft. The upper part of Heathcote Shaft, from approximately the 70th to the 40th level, will be used as an upcast shaft and so provide the improved upcast ventilation way essential in this section of the mine.

It is estimated that the scheme which costs about £226,000 will take about 4 years to complete. To meet the extra expenditure the Company has increased its capital by £65,000 to £325,000 by the creation and issue of 130,000 shares of 10*s.* each at the price of 35*s.* per share or a premium of 25*s.*

Ooregum Mine.

Production reached its lowest point in 1934, *viz.*, 50,303 ozs., the decline having been continuous since 1927, but a welcome improvement was seen last year. This, coupled with the higher prices obtained for gold realised £367,752, a figure larger than any since 1928. The quantity of ore milled, 148,707 tons, was practically the same as the average for the previous ten years, while the value of the ore milled averaged 5·54 cwt. per ton. Of the 52,344 ozs. recovered last year, 40,352 ozs. were obtained from current ore, 11,905 ozs. from sand and slime retreated and 87 ozs. from accumulated matter.

The distribution in dividends for the year amounted to 2*s.* per share or 20 per cent on the Preference and 1*s.* per share or 10 per cent on the Ordinary Shares as against 22½ per cent and 12½ per cent, respectively, in the previous year.

Last year the development footage totalled 12,350 ft. or 1,036 ft. more than in the previous twelve months and it was attended with substantial additions to the ore reserves in the bottom of the mine. There were 176,372 tons of ore in reserve at the end of last year of an average grade of 9·57 dwt. per ton as against 139,400 tons of 9·38 dwt. at the end of 1934. In addition there were 94,000 tons of probable ore of low grade, but payable at the present price of gold.

The western ore shoot is developing satisfactorily in depth and has largely contributed to the increase of the reserves. Every third level is driven practically through the property. On the intermediate levels, development is confined to the opening up of the ore bodies and the necessary means of access to them. The 80th and 81st levels have been completed on the ore shoots with the exception of a short length at the 81st level at the S. end of the mine. The 82nd level which is being driven throughout the property is nearing completion.

In the upper part of the mine a considerable amount of ground has been stoped above the 1,610 ft. level in the reclaimed areas and at this level cross-cutting and driving have been undertaken in the exploration of the area in which Mundy's lode might be found.

Bullen's Incline Shaft has been deepened 278 feet during the year and has reached an incline depth of 4,564 feet below the 40th level or 297 feet below the 82nd level.

The Auxiliary Shaft has been deepened 268 feet during the year to a total depth of 3,374 feet below the 50th level or 3 feet below the horizon of the 85th level. Headings have been driven from the shaft at the 83rd and 84th levels and a large station at the 85th level is in course of completion.

Ventilation.—The main ventilation system remains unchanged but has been modified by the increasing depth of the mine in order to conduct the downcast air currents to the lowest workings. Increased use is being made of auxiliary fan units, electrically driven, for the ventilation of development points remote from the influence of the main air currents.

At the top of the Circular Shaft on surface — the main upcast duct — a new 95 inch two-stage Torpedo fan has been installed in place of the Sirocco fan hitherto in use. This has increased the volume of upcast air removed from the mine to 209,120 c.ft. per minute at 6·16 inches water gauge, having a temperature of 83·2°F dry bulb and 76·6°F wet bulb, relative humidity 73 per cent.

The deepest point in the mine is the bottom of the Auxiliary Shaft which is 7,934 feet vertically below field datum.

Nundydroog Mine.

During the year 235,400 tons of ore and 63,250 tons of accumulated tailings treated produced 111,157 ozs. of fine gold as compared with 110,536 ozs. for the year 1934. The average assay value of the ore milled was 9 dwt. 9·7 grains per ton. Of the gold content 97·9 per cent was extracted in the treatment plant. The average price realised for the gold was £7-0-9¼ per oz. as against £6-17-5 per oz. in the previous year and the total realisation was £783,684-8-11 as against £771,149-13-6. The amount distributed as dividends for the year 1935 was £191,025 equal to 67½ per cent, the same as that of the previous year.

Exploratory and development work in the mine totalled 23,073 feet as compared with 19,129 feet in 1934. The ore reserves at 31st December last were estimated at 492,664 tons of an average assay value of 14·07 dwt., an increase of 57,457 tons and a decrease of 0·52 dwt. in grade compared with the figures of the previous year. In addition there is a tonnage of probable ore of low grade estimated at 217,916 tons. At no time in the history of the mine has the reserve tonnage been as high as it was last year.

The rich fold that had been developing downwards in Taylor's Section in the southern part of the mine for some years continued to give excellent results on the 60th and 61st levels but below the latter it has lost its distinctive character and has become merged into the normal lode channel on the 62nd level. In the Oriental Section to the north, the position in the bottom levels remained much as it was in 1934, plenty of quartz of good width, but for the most part of rather low grade. The lode in Kennedy's Section in the centre of the mine continues to disclose irregular values with short stretches of high-grade ore.

Nine Reefs.—The old workings have been dewatered from the 650 ft. to the 1,050 ft. level. Exploratory work in connection with wall-to-wall exposures of the reef and a considerable amount of reclamation work, together with a comprehensive resampling of the workings have been undertaken. Out of the 4,726 tons broken during the year, 1,337 tons of selected ore having an assay head value of 13·84 dwt. were treated.

Richards' Incline Shaft which is being extended from the 44th to the 48th level has reached a point 224 feet below the 44th level and should be completed by the end of 1936. This will ease the demand on Henry Shaft besides improving ventilation.

The South Ventilation Duct from the 57th level has been extended 362 feet and now communicates with the 59th level. The Ventilation of the mine has been satisfactory.

The deepest point in the mine is the sink of No. 4 Auxiliary Shaft which is 6,331 feet below field datum.

Reduction Plant.—The Collector and Agitator portions of the plant have been re-organised and an additional 50 feet diameter collector and a Pachuca are now in course of erection. When completed, these works will be followed by an addition to the Butters' Filter Plant and thus bring the capacity of the Cyanide Plant up to 30,000 tons per month early in 1937.

General.—A new electric transmission feeder line has been erected between the Government Station and the Reduction Plant.

Also, another transmission line is now being laid from Balaghat Transformer House to Henty's Shaft, Nine Reefs, and thence to No. 1 Shaft, Road Block. This line will supply power for electric pumps for the dewatering of Road Block old workings.

VII.—Electric Power Supply.

(a) *Cauvery System.*

The following statement, kindly furnished by the Chief Electrical Engineer to Government, shows the number of motors in service and the power consumed by the different mines during the calendar year 1935 :—

Name of Mine	Number of motors in service	Nominal H. P.	Rated H. P.	Average Constant H. P. absorbed	Annual consumption in B. T. U.
Mysore ...	51	5,135·0	4,407	3,252	21,255,500
Champion Reef ...	26	5,530·0	5,383	3,634	23,750,800
Ooregum ...	34	5,177·5	3,753	2,630	17,190,500
Nundydroog ...	42	5,376·5	4,822	3,929	25,679,600
Total ...	153	21,219·0	18,365	13,445	87,876,400
Total for 1934 ...	164	21,798·5	18,521	13,152	85,953,300

(b) *Kolar Mines Power Station, Limited.*

The following notes have been kindly furnished by Mr. J. A. V. Rowe, Chief Electrical Engineer, for the year ended 30th June 1936 :—

At the 30th June last, 321 motors with an aggregate horse power of 28,083·625 were connected to this Company's distribution systems and, of that number, 102 motors aggregating 20,630·75 horse power were operating Winding Engines and Hoists, while the remainder, *viz.*, 219 motors with a total of 7,452·875 horse power were being used to drive intermittent loads of other classes.

The consumption of power for different purposes during the year is given below in Board of Trade Units :—

	Intermittent Power.	*Hoisting.*	*Lighting.*	*Refrigerator.*
	8,484,242	13,577,201	806,677	6,686
Total Units sold ...	22,874,806.			

The rates prevailing at the 30th June 1936 were as follows :—

Intermittent Power	...	...	... '4 d.
Hoisting	...	...	... '55 d.
Lighting	...	...	... 4·5 d.
Refrigerator	...	...	... '75 d.

The horse power of 162 motors which were connected to the Cauvery System at June 30th totalled 17,888 horse power at Government rating or 21,321·5 at manufacturer's ratings. Adding the latter figure to the figure for the Kolar Mines Power Station, Limited, a total of 49,405·125 is arrived at as the total horse power of motors in service on the Mines at 30th June 1936.

No stoppages owing to scarcity of water were experienced during the period in question.

COMPARATIVE STATEMENT OF POWER CONSUMPTION.

Official year	Cauvery Power		Kolar Mines Power		Total number of motors in use	Total consumption in B.T.U. from both Stations
	Number of motors in use	Annual consumption in B. T. U.	Number of motors in use	Annual consumption in B. T. U.		
1924–25 ...	165	95,533,550	164	7,662,490	329	103,196,040
1925–26 ...	166	90,421,604	172	8,262,284	338	98,683,888
1926–27 ...	149	85,214,687	198	11,149,016	347	96,363,703
1927–28 ...	143	97,190,966	219	13,968,284	362	111,159,250
1928–29 ...	151	84,109,600	237	14,557,406	388	98,667,006
1929–30 ...	156	80,945,652	260	15,071,035	416	96,016,687
1930–31 ...	158	82,646,288	276	18,405,923	434	101,052,211
1931–32 ...	161	75,766,200	273	18,501,739	434	94,267,939
1932–33 ...	163	76,133,500	270	19,364,667	433	95,498,167
1933–34 ...	160	81,360,300	264	21,310,574	424	102,670,874
1934–35 ...	161	87,954,150	303	21,016,580	464	108,970,730
1935–36 ...	160	87,335,710	321	22,874,806	481	110,210,516

C.—CHROMITE, MANGANESE, MAGNESITE, KAOLIN, GREEN QUARTZITE, RED-EARTH, SOAP-STONE AND SLATE-STONE

CHROMITE.

The number of mining leases current for this mineral was 10 as in the previous year, including three of the Tata Iron and Steel Company, Limited, which are held both for chrome and magnesite. Work was done on seven blocks as against four in the previous year. The excess removal was from previous stocks held.

Name of Block	District	No. of M.L.	Output	Quantity removed from block	Royalty-payable
			Tons	Tons	Rs. a. p.
1. Sinduvalli ...	Mysore ...	147	7,450·55	7,416·72	5,562 8 0
2. Chickkattur ...	Do ...	155	38·56	6·46	6 7 0
3. Bhaktarahalli ...	Hassan ...	158	1,875·00	3,656·75	2,742 9 0
4. Chikkonhalli ...	Do ...	159	2,275·00	2,338·75	1,949 5 0
5. Jambur ...	Do ...	160	1,550·00	65·50	65 8 0
6. Sunkadhalli ...	Do ...	172	57·18	34·68	52 0 0
7. Pensamudra ..	Do ...	174	21·723	58·723	88 1 0
	Total ...	...	13,268·013	13,577·583	10,466 6 0

MANGANESE.

Three mining leases and three prospecting licenses were current for this mineral as against three mining leases and two prospecting licenses during the previous year. Occasional demands in the Japanese markets for the low grade 40 per cent ores have stirred up to a certain extent the dormant interest in the exploitation of our manganese deposits. This has only resulted till now in the receipt of a number of applications afresh for prospecting licenses for the mineral, but the actual work done on the blocks already held under such licenses and leases has not shown any striking progress. In view of the prevailing low price of about 1*s.* a unit for good grade ores, at the continental ports, the high transportation charges seem to stand in the way of their large scale development.

The particulars of output from the various blocks are shown hereunder:—

Name of Block	District	No. of M. L. or P. L.	Output	Quantity removed from the block	Royalty payable
			Tons	Tons	Rs. a. p.
1. Hulikatte ...	Chitaldrug ...	M. L. 171	307·5	50·00	62 8 0
2. Keshapur ...	Do ...	M. L. 176	59·8	86·80	54 4 0
3. Keshapur ...	Do ...	P. L. 768	80·0	4·00	2 8 0
4. Honnebagi ...	Tumkur ...	P. L. 769	115·0	..	...
		Total ...	562·3	140·80	119 4 0

MAGNESITE.

As in the previous year, three mining leases held by Messrs. The Tata Iron and Steel Company, Limited, were current for this mineral but as usual only the Dodkanya Block was worked. The output was 3,796·32 tons and the removal 1,735·25 tons on which a royalty of Rs. 2,712-7-0 has been paid.

Kaolin.

Two mining leases held by the Kolar Brickmaking Company, Limited, were current for this mineral. The total output for the year was 2,503·69 tons and the entire quantity was removed from the blocks under payment of royalty of Rs. 2,075-10-0.

Five prospecting licenses were also current for this mineral in the Bangalore and Kolar Districts. Under cover of these licenses, 30 tons were won and removed yielding a royalty of Rs. 30.

Green Quartzite.

One prospecting license was current for this mineral in the Kadur District. Except for an output of two tons of the material, there was little activity on the block.

Red-Earth.

Eleven thousand and sixteen c.ft. of this material were won and removed by the Kolar Brickmaking Company, Limited, from the mining lease areas held by the Nundydroog Mines, Limited, for manufacturing roofing tiles. A royalty of Rs. 48-3-0 was realised on the removal.

Soap-Stone.

The output of this mineral for which three collecting licenses were current in the Tumkur District was 90 tons. Ninty-three tons were removed from the blocks, the excess being from the stocks held. A royalty of Rs. 170 was realised in respect of this mineral.

Slate-Stone.

Two prospecting licenses were current for this mineral in the Tumkur District the output and removal being 11 tons on which the royalty realised was Rs. 13-12-0

Demand, Collection and Balance Statement of Mining Revenue and Geological Receipts, other than Royalty on Gold for the year 1935-36.

Items	Opening balance	Demand	Total	Collection	Closing balance
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1. Royalty on other minerals.	...	15,707 9 6	15,707 9 6	15,655 9 6	52 0 0
2. Rent on mining and other prospecting lands.	...	45,564 14 8	45,564 14 8	45,564 15 3	7 pies paid in excess.
3. Other receipts ...	...	5,697 2 0	5,697 2 0	5,697 2 0	...
4. Geological Receipts ...	0 9 0	8,261 8 3	8,262 1 3	8,261 8 3	Balance 9 annas written off as per orders of Govt.
5. By sale of chromite ore.	...	79,500 0 0	79,500 0 0	79,500 0 0	...
Total Gross Receipts ...	0 9 0	1,54,731 2 5	1,54,731 11 5	1,54,679 3 0	52 8 5

The above information is extracted from particulars kindly furnished by the Director, Mysore Geological Department.

Figures relating to output of chromite, iron ore, limestone, etc., during the calendar year 1935 in the areas worked by Government Agency are contained in Table 4, appended to this report.

D. OFFICIAL DUTIES—1935-36.

Constitution of the Department.—There have been no alterations in the constitution of the Department which was as follows:—

Chief Inspector of Mines and Explosives in Mysore	...	Mr. C. E. Suryanarayana Rau, MEM.A.I.M.E., &c.—
Inspector of Mines (Ag.)	...	... „ K. Duraiswamier, B.A., ASSOC.I.M.M.
Assistant Inspector of Mines (Ag.)	...	... „ V. Narayana Rao, B.A.
Junior Inspector of Mines (Provisional)	...	... „ J. P. David, B.Sc.
Prabationer	...	... „ R. S. Batni, B.A., A.I.S.M.

Deputation.—Government in their Order No. D. 5753-54—Geol. 58-35-3, dated 19th March 1936, sanctioned the deputation of Mr. K. Duraiswamier, Ag. Inspector of Mines, to South Africa, for a period of about six months for training in modern methods of mining work and practice in some of the important gold mining centres there. Mr. Duraiswamier left for South Africa on the 7th July 1936.

OFFICE INSPECTION.

The annual inspection of the office was carried out in April 1936 and everything was found to be in order.

STATISTICS OF BUSINESS.

During the year 2,732 letters were received and 2,880 despatched, compared with 2,658 and 2,586, respectively, in the previous year.

STORES AND STOCK-TAKING.

The stock registers relating to furniture and other articles have been written up-to-date. These were checked as required by Codal Rules and found to be correct.

INSPECTION OF MINES—KOLAR GOLD FIELD.

The mines on the Kolar Gold Field have all been systematically inspected by the Inspectors of Mines throughout the year besides the numerous inspections carried out both underground and on surface in connection with accidents. These inspections entail much hard work under extremely trying conditions as the mines have reached great depths — two of them being over 7,800 ft. vertically below field datum — where rock temperatures are very high. The inspection work is extremely arduous and enervating requiring great physical exertion. No serious defects or lapses of the mining rules have been brought to light by these inspections and the mining authorities have always readily and willingly co-operated with the Department in adopting all possible measures to prevent accidents and any suggestions made for improving the safety of workmen or for alleviating the natural discomfort of the deep working places have been favourably considered and carried out at considerable expense.

Enquiries into all fatal and serious accidents have been held, including those classed as trivial or non-mining in which a breach of the rules occurred or was suspected to have taken place. The persons responsible for breaches of rules were either prosecuted or dealt with departmentally according to the gravity of the offence.

EXAMINATION OF CANDIDATES FOR CERTIFICATES UNDER THE MINING RULES.

Under Rules 15 and 16, Mysore Mining Rules, examination for the grant of certificates of Mestris, Blasters and Engine Drivers (1st and 2nd class including Loco. Drivers) are conducted by the Department once a week. In all, 619 candidates were examined during the year.

The following statement shows the number of candidates examined and certificates granted up to the end of June 1936:—

Year	Mestris		Blasters		Engine drivers			
					First Class		Second Class	
	Number examined	Number passed	Number examined	Number passed	Number examined	Number passed	Number examined	Number passed
Total up to end of June 1935.	14,767	14,499	9,904	9,221	459	459	352	352
For 1935-36 ...	367	367	201	160	17	17	34	34*
Total up to end of June 1936.	15,134	14,866	10,105	9,381	476	476	386	386

*Includes 7 Loco. Drivers.

On application and after verification, 35 duplicate tickets (discs) were issued to mestris who had lost the originals.

The fees realised during the year from candidates appearing for the above examinations, issue of duplicate discs and fees levied for testing lightning conductors attached to explosives magazines, etc., amounted to Rs. 2,842-14-9 as against Rs. 2,429-8-0 in the previous year.

Inspection of Mining Accounts.

In accordance with the Standing Orders of Government the annual inspection of the accounts of one of the Gold Mining Companies, *viz.*, the Champion Reef Gold Mines of India, Limited, was carried out on the 20th August 1936 by the Deputy Comptroller to Government in association with the Chief Inspector of Mines and Explosives. The inspection work was facilitated by the help rendered by the Resident Auditor, Messrs. John Taylor & Sons' Committee and the Company's Accountant.

The gold production statements and accounts connected therewith for the months of September 1935 and March 1936 were inspected in detail with reference to the several registers maintained in the office and the vouchers and other documents in support of the charges in the Royalty statements were examined. Copies of the National Bank of India Sale Accounts and the Mint Returns received in the Comptroller's Office were compared with the originals and found to agree.

Inspection of Mines—Outside Kolar Gold Field.

The following blocks outside the Kolar Gold Field were inspected during the year :—

Mysore District.—

Sinduvalli	...	Chrome	... Mining Lease No. 147
Dodkanya	...	Magnesite	... do 150
Talur	...	Chrome	... Government area.

Chitaldrug District—

Hulikatte	...	Manganese	... Mining Lease No. 171
Keshapur	...	do	... do 176
Mahadevapur	...	do	... do 173

Hassan District.—

Byrapur	...	Chrome	... Government area.
Bhaktarhalli	...	do	... Mining Lease No. 158
Chikkonahalli	...	do	... do 159
Jambur	...	do	... do 160
Pensamudra	...	do	... do 174
Sunkadahalli	...	do	... do 172

Tumkur District.—

Hatyal	...	Slatestone	... Prospecting License No. 756
Gollarahalli-Honnebagi		Manganese	... do 757
Manchekatte	...	Slatestone	... do 764
Beerasandra	...	Soapstone	... Collecting License Nos. 124, 125 and 126

Kolar District.—

Karadibande	...	Kaolin	... Mining Lease No. 154
Thinnalu	...	do	... do 175

Except Sinduvalli Mine in Mysore District all the others are worked on the "open cast" system.

II. Labour Employed.

The total number of persons employed in the Mining Industry in 1935 was 23,801 as against 22,640 in the previous year.

Of this number, 22,271 were employed in gold mining against 21,514 in 1934; 111 on manganese against 38; 813 on chromium against 505; 160 on iron ore against 185; 190 on magnesite against 159; 58 on kaolin against 81; 17 on soapstone against 24; 4 on green quartzite against 4; 26 on felspar against 13; 43 on crude graphite against 37; 26 on quartz against 7; 15 on slatestone against 6; and 67 on limestone against 51.

Of the 22,271 persons employed in gold mining 339 were Europeans, 491 Anglo-Indians and 21,441 Indians, a total of 14,120 being employed below ground and 8,151 on surface. Of the latter, 998 were women and 518 children under 12 years of age.

There is no change in the general working hours underground or on surface. But in sinking large shafts at the deeper levels of the Champion Reef and Nundydroog Mines, the usual three shifts of eight hours each have been changed to four shifts of six hours each to expedite development in depth. The average wages paid to different classes of Europeans and Indian employees per month are embodied in Table 5 attached to this report.

The following statement gives the average number of hours worked and the average earnings per person per week in 1935 in respect of labour employed by the gold mining companies and their allied departments on the Kolar Gold Field.

Average number of hours worked per person per week		Average weekly earnings per person	
Underground	Surface	Skilled	Unskilled
		Rs. a. p.	Rs. a. p.
46	55	8 1 1	3 11 3

Labour Troubles.

Consequent on the introduction by the Mysore Gold Mining Company of a local measure to curtail Sunday work, some of the workmen who were affected by it misrepresented matters to their co-workers, as a result of which a majority of them refrained from going to work on 30th July 1935 and assumed a very aggressive attitude. The trouble soon spread to the neighbouring mine also but by prompt measures the situation was brought under control and normal conditions of work were restored by 3rd August 1935.

Welfare Work.

The scheme organised in 1931 for the Welfare of labourers on the Kolar Gold Field is making steady progress in all directions. The welfare activities continued to receive attention. Additional living houses, sanitary improvements, play fields, amusements, refreshment stalls and washing and bathing facilities were provided during the year.

The Central Welfare Committee have organised a Travelling Cinema to give two shows on an evening a week on each mine. This cinema is very popular and large crowds gather and appreciate the performance. It is intended to use the cinema for lectures on health, hygiene, temperance and "Safety-First."

Maternity houses and clinics have been opened on each of the mines during the year where expectant mothers are confined under more pleasant and hygienic conditions. Thirty-five per cent of the deliveries for the whole Field have taken place in these homes since their inception.

Annual sports for labourers and their children take place on each mine. A very high order of running and jumping was witnessed last year. Grants for prizes were made from the Central Welfare Committee Funds.

Apart from athletic sports, one of the most interesting items on the programme was a rock-drilling competition organised by the Chief Underground Agent of each mine.

Arising out of these sports, an Inter-Mine competition was held on 28th March 1936 for a Shield presented by Mrs. Sydney Taylor for all round proficiency. Great keenness and interest was shown by the contestants and the Champion Reef Mine are the first holders of the Shield.

Miners' Phthisis.

By Government Order No. P. 846—Legis. 7-36-1 dated 31st July 1936, miners' phthisis or silicosis has been added to the list of occupational diseases specified in Schedule III of the Workmen's Compensation Regulation XIV of 1928.

III. Accidents.

(*a*) Statistics for the year 1935.

The total number of accidents reported during the year 1935 was 277 against 336 in the previous year—

Of these accidents :—

		44 were fatal,
		230 serious and
		3 non-mining
Total	...	277

The total number of fatal and serious accidents was therefore 274 which works out at the rate of 11·51 per 1,000 persons employed as against 14·40 in the previous year.

Enquiries were instituted into all the 274 accidents reported to this Department and inspections were also made in connection with accidents of more than ordinary importance.

Of the above 274 accidents :—

19 or 6·93 per cent were due to negligence,
24 or 8·76 per cent were due to recklessness and
231 or 84·31 per cent were classed as unavoidable.

The corresponding figures for the year 1934 were :—

19 or 5·83 per cent were due to negligence,
19 or 5·83 per cent were due to recklessness and
288 or 88·34 per cent were classed as unavoidable.

In the 44 fatal accidents, 57 persons were either killed or died as a result of injuries received giving a mortality of 2·39 per 1,000 persons employed against a mortality of 2·47 during the year 1934.

The death rate in the gold mines which as usual employed the largest number of labourers was 2·38 per 1,000 against 2·61 in 1934.

The following Chart III shows the total number of persons killed in accidents in the mines during the years 1906 to 1935 and the accident death rate per 1,000 persons employed. The average death rate for the whole period is 3·14 per thousand and the rate for the year under report is 2·38 as against 3·16 and 2·61 in the previous year.

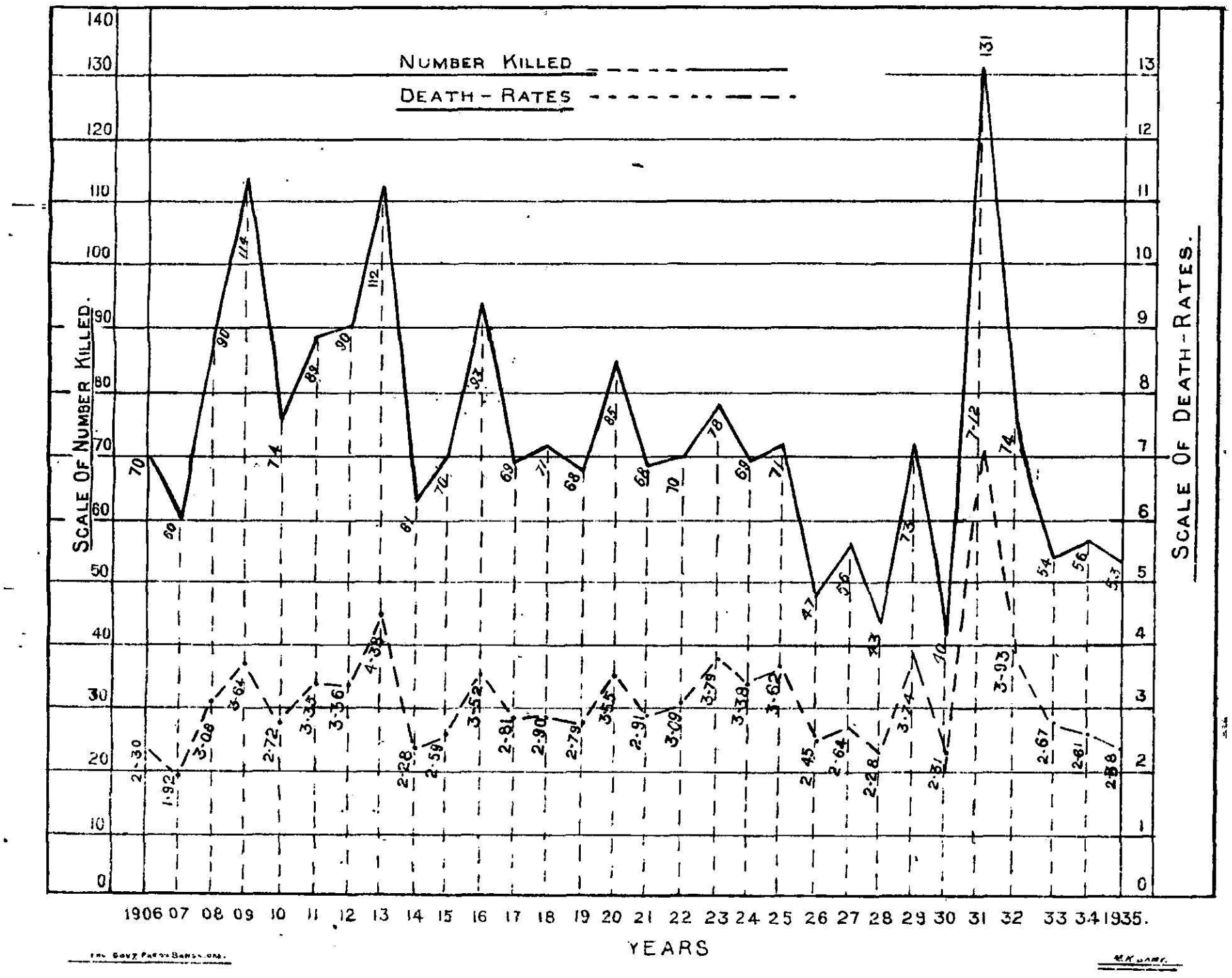
Of the 44 fatal accidents in 1935 :—

31 or 70·45 per cent were unavoidable,
7 or 15·91 per cent were due to recklessness, and
6 or 13·64 per cent were due to negligence.

KOLAR GOLD FIELD

TOTAL NUMBER KILLED BY ACCIDENTS AND ACCIDENT DEATH RATES PER 1,000 PERSONS IN SERVICE PER ANNUM

Chart III



There were five individual accidents involving two or more fatalities, one of these occurring in Champion Reef, three at Nundydroog and one at Sinduvalli Mine.

In the above five cases, 18 persons lost their lives compared with 8 and 18, respectively, in the previous year.

In the 12 separate accidents due to rockbursts, 21 persons were killed, compared with 10 and 15, respectively, in the previous year. Of the above, one took place at Mysore Mine, two at Champion Reef, five at Ooregum and four at Nundydroog.

Four fatal accidents due to explosives occurred underground involving the death of five persons against two and three, respectively, in the previous year.

Falling away in shafts, winzes and stopes accounted for 11 fatalities in 11 separate accidents against eighteen and twenty-one in the previous year.

Classification of Accidents in 1935.

		Fatal accidents	Non-fatal accidents	Deaths	Serious injuries
1.	Rockbursts	12	28	21	49
2.	Falls of ground	2	6	2	8
3.	Falling in shafts, stopes, etc.	11	10	11	10
4.	Explosives (misfires, etc.)	4	9	5	16
5.	Trucks and Tramways	1	28	1	28
6.	Run over or struck by skips or cages, etc. ...	1	1	1	1
7.	Hoisting	3	3	3	3
8.	Other machinery	...	1	...	1
9.	Falls of rock and materials in shafts, stopes, etc.	5	52	5	52
10.	Ropes and chains breaking	...	...	...	...
11.	Other causes	5	92	8	93
	Total ...	44	230	57	261

Chart IV on the next page shows the curves of rate of underground accidents per 1,000 in the Kolar Gold Field Mines. The curve for the total number of men involved in accidents per 1,000 reached the peak of about 27 in the year 1929. The average rate during the past 12 years is about 20 per 1,000. The rate curves for accidents and serious injuries have both improved for the better during the year 1935. The curve for death rate which reached the peak point in 1931 has been on the decline eversince irrespective of the increase of the underground labour from about 8,500 to 14,000 at the end of 1935.

Non-casualty accidents reported under rule 165 of the Mysore Mining Rules.

There were nine accidents reported under this head caused as follows:—

1.	Engine running out of control	0
2.	Fracture of essential part of winding engine, crank shaft, couplings, gearings, clutch drum or drum shafts.	0
3	Fracture of winding rope or its attachments to skip, cage or drum ...	0
4.	Fracture of pit-head sheave or axle	0
5.	Failure of efficiency of brake	1
6.	Failure of safety catch to act when required	0
7.	Failure of device for prevention of overwinding or of detaching hook to act when required.	0
8.	Overwinding of cage or skip	8
9.	Bursting of anything containing steam, compressed air or other substance at high pressure.	0
	Total ...	9

Of the nine accidents reported during the year, 8 were due to overwinding of the cage or skip and one to a faulty design in the valve system of an emergency brake. Seven of the overwinds occurred in electric winders and one in an air hoist. Of the nine accidents, eight were due to carelessness of drivers and one to faulty

design. Action was taken against the eight drivers who were responsible for overwinds, five were severely reprimanded and warned while the remaining three were fined, the amount of fine ranging from Rs. 5 to Rs. 15.

As all the important winders are provided with safety devices, no serious damage was caused to the winders or to the shaft equipment.

(b) Compensation for Fatal and Serious Accidents in Mines on the Kolar Gold Field for the year 1935-36.

During the year, 164 claims for compensation comprising 73 fatal, three permanent total disablement and 88 permanent partial disablement arose from accidents in the mines on the Kolar Gold Field and the compensation awarded under all the above heads amounted to Rs. 91,885-13-0 as against Rs. 62,895-11-0 paid in the previous year. Besides the above, compensation amounting to Rs. 19,883-3-0 was paid in cases of temporary disablement in pursuance of Section 4 (*d*) of the Workmen's Compensation Regulation as against Rs. 22,762-5-0 paid in the previous year.

An extract from the report of the Commissioner on the administration of the Workmen's Compensation Regulation on the Kolar Gold Field during 1935-36 is given in Appendix I of this Report.

The following statement shows the number of Fatalities, Permanent and Temporary Disablements and compensation paid by the mines working on the Kolar Gold Field during the year ended 30th June 1936 :—

Name of Mine	(a) Number of cases				(b) Compensation paid				
	Fatal	Permanent Total Disablement	Permanent Partial Disablement	(c) Temporary Disablement	Fatal	Permanent Total Disablement	Permanent Partial Disablement	Temporary Disablement	Total
	No.	No.	No.	No.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
Mysore ...	19	...	26	695	14,877 8	...	9,889 0	5,463 14	30,230 6
Champion Reef ...	15	...	27	807	9,897 8	...	10,780 9	4,542 1	25,220 2
Ooregum ...	19	...	13	537	13,167 8	1,260 0	4,068 12	4,009 5	23,405 9
Nundydroog ...	20	3	22	958	15,740 0	1,303 5	9,587 3	5,766 1	32,396 9
Allied Depts. ...	...	...	...	16	...	..	414 8	101 14	516 6
Total ...	73	3	88	3,013	53,682 8	2,563 5	35,610 0	19,883 3	111,769 0

(a) Several claims are still outstanding and continue to receive compensation.
(b) Includes payments made in respect to claims arising previous to this period.
(c) Only such disablements as last for more than ten days are shown in the above.

The following amounts were paid as compensation in the previous years :—

Year.	*Total amount of compensation paid.*
	Rs. a. p.
1930–31	1,05,853 14 0
1931–32	1,31,344 9 0
1932–33	71,900 12 0
1933–34	79,454 12 0
1934–35	85,658 0 0

(c) Notes on Important Accidents during the official year 1935-36.

There were eight accidents involving the loss of two or more lives during the period accounting for 22 fatalities as against six accidents and 17 deaths during the previous year. Of these, five were due to rockbursts causing 15 deaths, one of them alone being responsible for seven deaths. Explosives accounted for three accidents and seven deaths.

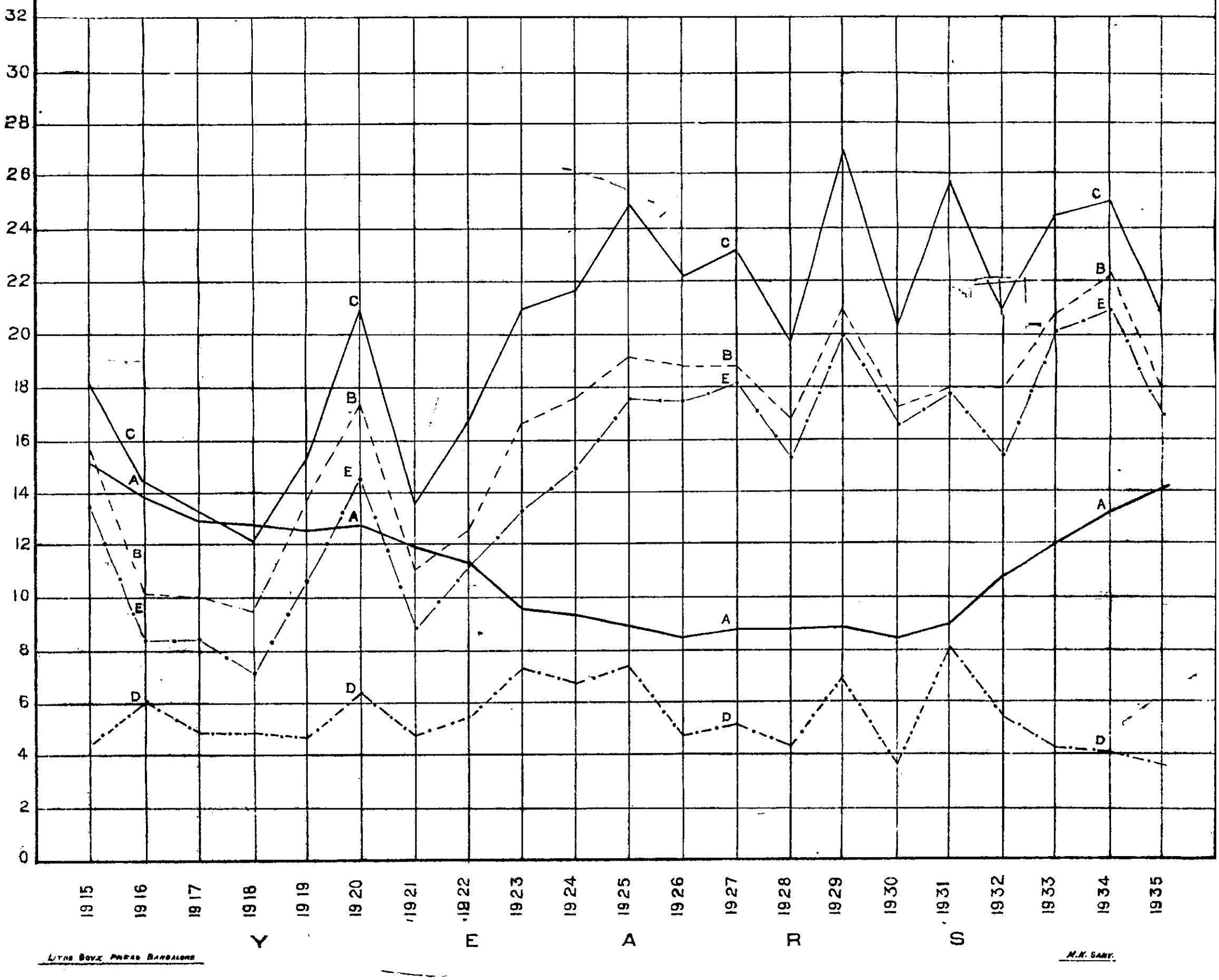
Cause	No. of Accidents	No. of Fatalities
Unavoidable	5	15
Negligence	3	7
Recklessness	...	...
Total ...	8	22

KOLAR GOLD FIELD

UNDERGROUND ACCIDENTS

Chart IV

A. UNDER GROUND LABOUR 1000's
B. ACCIDENTS PER 1000
C. MEN INVOLVED IN ACCIDENTS PER 1000
D MEN KILLED PER 1000
E MEN SERIOUSLY INJURED PER 1000



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M.K. SAMY.

Chart V.

KOLAR GOLD FIELD.

Annual Cost Of Support Of Workings, Etc., Tons Of Material Excavated, Number Of Rockburst Accidents And Percentage Of Rockburst Accidents To Total Number Of Accidents.

Scales Of Cost Of Support Of Workings, Etc, In Lakhs Of Rupees & Material Excavated In Lakhs Of Tons.

Scales Of Number Of Rockburst Accidents & Percentage Of Same To Total No Of Accidents

Cost Of Support Of Workings, Etc.

Material Excavated

Rock Burst Accidents

Percentage Of Rockburst Accidents To Total Accidents

Years

Litho Govt Press Bangalore

M.H.Sam

and the working stopes had been adequately supp...

C. I. M.

filling. But for the heavy and close timbering of the reef levels, the damage would have been even greater.

Accident No. 96 *of* 1936.—Some portions of Ribblesdale's Section, Mysore Mine, containing rich ore reserves were rendered inaccessible by a series of rock-bursts which occurred some years ago. These places are now being reclaimed by footwall drives and crosscuts put out at suitable intervals to intersect the old reef drives; the reclaimed portions are being supported by masonry walls and 75 lb. section steel rail sets.

At about 2-20 A.M. on 14th June 1936, a heavy rockburst occurred which badly affected the 33rd level over a distance of about 140 feet and a mestri and his cooly who were at work here were buried in the debris. They were immediately rescued and sent to hospital where they died later. The force of the thrust resulting from the rockburst was so great that the rail sets which had been fixed at close intervals and carried up to the working face were twisted and bent into curious shapes, in some places reducing the original 5 feet width of the drive to barely 18 inches. But for these rail sets, the drive should have been completely blocked and it would have taken a very long time to clear it and rescue the victims.

Accident No. 82 *of* 1936.—On 27th May 1936, nine hand-drillers were at work in a stope below the 49th level S., McTaggart's Main Winze, Mysore Mine, when at about 1-45 P.M., the footwall suddenly burst and the mestri and a cooly who were at the point were knocked down the ore-pass by the dislodged slabs of rock along with the guard rails fixed at the point as a protection and were killed outright.

Owing to the heavy nature of the ground encountered in this part of the mine, the stopes and the levels were well supported by masonry walls, pigstyes and timber and steel sets. The sudden burst of the footwall was least expected.

All the other accidents due to rockbursts are of ordinary nature and do not call for any special remarks.

Explosives.

There were nine fatal accidents involving fourteen deaths under this head as compared with a single fatal accident involving one fatality during the previous year. Eight of these were due to drilling into or intersecting sockets or misfires while one was due to the explosion of a hole before the blaster was able to retire to a place of safety after igniting a round of holes. The eight cases were due to neglect on the part of the persons concerned to carry out the provisions of the rules in this behalf. Two of the persons responsible for these accidents were prosecuted and sentenced to pay a fine of Rs. 10 and to undergo simple imprisonment for one month, respectively, the certificate of one person was cancelled and that of another suspended "*sine die*" and certificates of three others suspended for periods varying from three to six months, a chargeman was fined by the management Rs. 20 in one case, the mestri concerned in another absconded immediately after the accident and the case launched against another is pending with the Magistrate. No action could be taken in two cases as the persons responsible for them had died as a result of the injuries received.

In a single accident in Mysore Mine three lives were lost due to an explosion resulting from intersecting a misfired hole.

Blasting accidents can be avoided if the necessary care is exercised by the persons in charge of working places in examining the face carefully, plugging all sockets securely and planning new holes at a safe distance from old ones.

Falling away in Shafts, Winzes, etc.

There were 17 accidents from this cause resulting in 17 deaths as against 15 accidents and 18 deaths last year. Of these, five were due to neglect of the persons in charge, five to recklessness on the part of the deceased persons and the rest were due to unavoidable causes.

Falling away in shafts accounted for six accidents involving six fatalites. While a timber cooly was riding down in a cage, he was for some unknown reason pulled out and dismembered. Another cooly who was riding up in the cage came in violent contact with the shaft timbers and fell down the shaft. A shaft cooly working on the top of a cage overbalanced and fell down the shaft and a labourer

working in the shaft was knocked down by a timber dislodged by a derailed cage. A surface lander while oiling the wheels of a skip fell down the shaft and was killed. A tea-boy when he was lowering a manifold to the sink slipped and fell down the shaft.

The other accidents were due to falling down winzes while riding up or down in buckets or climbing up or down by ladders.

Cases of Neglected Injuries.

During the year there were seventeen cases of neglected injuries (as against 34 in 1934) which, though trivial at the time of occurrence, became serious owing to neglect on the part of the persons concerned in seeking immediate medical aid. The total number of neglected mining accident cases, both serious and trivial, treated in the Kolar Gold Field Mines' Hospital was 648 as against 591 in the previous year. Though there is an increase in the total number of neglected injuries, as compared with the previous year, there has been an appreciable decrease in the number of serious cases. Workmen neglect to attend the hospital for treatment as they will have thereby to forego their full daily wage for the first ten days under the Workmen's Compensation Regulation. Government have since been pleased to amend the Regulation in this regard by reducing the waiting period from ten to seven days. It is hoped that this beneficial measure will have the effect of minimising the number of cases of neglected injuries in future.

The following statement shows the cases of neglected injuries treated in the Companies' Hospital:—

Name of Mine	January		February		March		April		May		June		July		August		September		October		November		December		Total		Grand Total
	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	Serious	Trivial	
Mysore	...	13	...	9	...	22	...	32	1	25	...	17	1	23	...	28	...	30	...	26	...	20	...	17	2	262	264
Champion Reef ...	1	3	...	4	1	7	...	6	1	5	...	5	...	9	1	8	...	17	1	8	1	9	...	5	6	86	92
Ooregum ...	...	5	...	5	...	6		6	...	6	...	8	...	6	...	4	...	9	...	6	1	5	1	7	2	73	75
Nundydroog ...	1	15	1	9	1	22		20	..	14	2	15	1	24	...	20	1	18	...	16	...	20	...	17	7	210	217
Grand Total ...	2	36	1	27	2	57	...	64	2	50	2	45	2	62	1	60	1	74	1	56	2	54	1	46	17	631	648

IV. Meteorology and Seismology on the Kolar Gold Field.

The following has been taken from the Report for the year 1935 by Mr. H. A. Martin, Officer-in-charge of the Kolar Gold Field Observatory, which was kindly furnished to this Department by Messrs. John Taylor & Sons' Committee, Oorgaum.

Meteorology.

Throughout the year observations were taken daily at 8, 10 and 16 hours and tabulated.

Temperatures.—The highest dry and wet bulb temperatures recorded during the year were 101·4°F and 75·4°F, respectively, while the lowest were 54·8°F and 50·5°F, respectively. The mean dry bulb temperature (76·1°F) was above normal by 0·5°F while the mean wet bulb temperature (65·9°F) was only 0·3°F above normal (65·6°F).

Rainfall.— The total rainfall for the year reached the remarkably high figure of 35·24 inches or 4·27 inches above the normal. This total is the highest for the previous thirteen years, 37·02 inches having been recorded in 1922.

SEISMOMETRY.

The installation was maintained in more or less continuous operation throughout the year in spite of several instrumental failures after each of which the instruments were reset with minimum delay.

Classification of Rockbursts.—The same classification as in previous years has been continued and the following table gives the total number of bursts recorded during the year:—

Displacement in Millimetres.			*Number of Rockbursts.*		
			1935.	*Normal (mean)*	*Departure.*
Less than	1·0	...	2,044	2,365	—321
Between	1·0— 2·0	...	596	437	+159
Between	2·0— 3·0	...	305	138	+167
Between	3·0—10·0	...	156	93	+ 63
Between	10·0—20·0	...	1	6	— 5
Over	20·0	...	2	6	— 4
Those in which one or more styles were thrown off		...	5	6	—1
	Total	...	3,109	3,051	+58

The following table shows the total number of bursts of 1 m/m displacement and upwards during the years of observation:—

Year	*Total*	*Year*	*Total*
1912	127	1924	328
1913	192	1925	445
1914	200	1926	337
1915	238	1927	341
1916	229	1928	295
1917	90	1929	446
1918	106	1930	693
1919	132	1931	675
1920	253	1932	564
1921	322	1933	830
1922	303	1934	667
1923	282	1935	1,065

Average for 1912 to 1935 = 709

Excess over average in 1935 = 356

From the above tables it will be seen that during 1935 "Minor" bursts appreciably decreased while there was a pronounced increase in "medium" bursts and bursts of "Major" intensity remained the same.

Earthquakes and Tremors.—The following table gives the number of disturbances of seismic origin recorded during 1935 together with the normal and departure therefrom:—

		1935	*Normal*	*Departure*
Earthquakes	...	29	29	...
Tremors	...	402	302	+100

The Quetta Earthquake (May 31st).—The seismogram was well defined and was typical of those given by shocks from the North-Western India.

The intensity at its origin of the Quetta earthquake was very much less than that of the Bihar disturbance of January 14th, 1934, yet many more lives were lost and the damage done was greater. This is attributable to the epicentre in this latter instance being located in open country, whereas in the case of Quetta the focus would seem to have been beneath the town itself.

As is usual, the principal shock was followed by a succession of "after shocks" at close intervals for some days and this has contributed to the slightly high total of "tremors" registered for the past year.

V. Underground Air Temperatures.

The deepest workings on the Kolar Gold Field are over 7,800 feet vertically below field datum and the rock temperature at this depth is about 131·2°F.

The following Statements A and B show the air temperatures recorded at some of the important underground stations and at selected working places in the bottom levels in Ooregum and Champion Reef Mines, respectively. The incidence of high wet bulb temperatures produces sometimes Heat-Exhaustion in the workmen, but they soon recover when removed to a well ventilated place. These cases of Heat-Exhaustion are quite distinct from those of " Heat-Stroke " occurring in the Rand Mines and fatalities from the former are very rare. There were 35 cases of Heat-Exhaustion during the year under report as against 37 in the previous year. Of these 26 were due to excessive heat, 2 to ankylostomiasis, 1 to non-acclimitization and the rest to other causes.